Does Personality Matter When We Are Sick? An Empirical Study of the Role of Personality Traits and Health Emotion in Healthcare Technology Adoption Decision

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Abstract

Several studies reported disparities among patients in using healthcare technologies. Although some researchers cited demographic characteristics as possible factors responsible for these disparities, these factors alone may not provide a complete view of adoption issues. Thus, disparities among technology users remain a topic of interest to Health Informatics researchers. Although personality traits are important factors in influencing technology adoption behavior, its' influence in healthcare technology adoption decision remains unknown. Moreover, individuals' emotion related to their on-going health issues further complicate the situation. Specifically, the interaction effect between patients' personality traits and health emotional state is an important and interesting research topic that is yet to be explored. This study proposes and empirically tests a conceptual model incorporating individuals' personality traits and health emotional states in the context of patient portal use. The results suggest interesting finding – individual's health emotion supersedes the influence of personality traits in healthcare technology adoption decision.

1. Introduction

Healthcare organizations are transforming from paper-based record systems to digital systems as part of ongoing efforts to reduce costs and improve the quality of care. Information technologies, such as Electronic Health Records (EHR) and patient portal systems, are at the forefront in leading this ongoing transformation. Despite the increased rate of adoption by healthcare organizations and widely known benefits, actual use of these healthcare technologies by patients remain critically low [1, 2]. Because, the success of any information systems relies on the actual use of the technology [3] as well as nature and extend of its use by its' intended users [4], the ultimate benefits of healthcare organizations' technology adoption depend on the extent of actual use of these systems by their patients. Thus, considering DeLone and McLeon's information systems success model, IS researchers [5, 6] called for more innovative approaches for the deeper understanding of patients behavior in terms of using healthcare technologies. Furthermore, several researchers [1, 7, 8] reported disparities in the use of healthcare technologies. Lack of patients' intention to use healthcare technologies as well as known disparities among users present a unique opportunity to understand the characteristics of patients who are likely to take advantage of these technologies for their healthcare needs as well as the characteristics of patients who are likely to avoid them.

Several studies in recent years have investigated the social and demographical characteristics of patient portal users, such as race/ethnicity [9-13], age [1, 8, 14], gender [1, 14], and education [13, 14]. Although individuals' demographic and societal factors do provide important insights and a step forward in understanding individuals' characteristics of patient portal users, they do not provide a complete picture. A review of technology adoption literature [15-18] suggests that individuals' personality traits are also important in influencing technology adoption behavior. Chang et al. [19] stated that patients' individual characteristics can interact with technology, which potentially influence their technology usage behavior. Dispositional factors, such as individuals' personality traits, that are mostly counted in Education, Organizational Behavior, and Human Psychology disciplines are left largely unexplored in Information Technology (IT) literature [20]. Moreover, the use of personality traits to understand technology adoption and use in the healthcare context is yet to be explored, despite their known importance in influencing technology adoption behavior.

In addition, healthcare technologies differ from non-healthcare technologies in social, organizational, and technical contexts. Unlike non-healthcare technology adoption behavior, where individuals engage in cost-benefit analyses for their decision making, healthcare technology adoption behavior involves an additional emotional factor that is very closely related to individuals' on-going state of health. Anderson and Agarwal (2011) argue that the healthcare

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context is considered unique because individuals consider health information to be more sensitive in nature than other non-health related information and 'health emotion' comes into play when dealing with health-related information. Moreover, people, in general, tend to exhibit more emotional behavior when they are faced with life and death choices than non-life threatening choices (Druckman and McDermott 2008). Findings from several recent studies on Health Information Systems (HIS) adoption and use [21-23] also tend to suggest that individuals' health emotional state plays a critical role in their decisions to use healthcare technologies.

Despite their importance, role and significance of 'personality traits' and 'health emotion status' in understanding healthcare technology adoption behavior have remained unexplored. Thus, we asked two important questions for this research – 1) do personality traits play important roles in healthcare technology adoption behavior similar to that of non-healthcare technology adoption behavior; and 2) does an individual's health emotional condition supersede personality traits and guide health technology adoption decision making? To investigate these research questions, this research studied patients' perceptions toward the use of healthcare technology in the context of patient portal systems.

The remainder of this paper is organized as follows. Section 2 and 3 provide a literature review of existing research on patient portal system adoption and the importance of 'health status emotion' in IT adoption, respectively. Section 4 proposes a conceptual model, discusses the constructs, and presents hypotheses for this study. The section 5 of this paper is used to discuss the methodology, including measurement instrument, and data collection. Section 6 is used to discuss the results, followed by the implications and limitations of this study as well as concluding remarks.

2. Patient Portal in Healthcare

The Patient portal system is a component of EHR system that provides a secure platform for patients to access their personal health records. Patient portals, frequently referred to as patient gateways [24], use personal information from patients and health information from EHR systems to provide certain healthcare services online. Patient portals are widely known as "tethered personal health record" or "tethered PHR" [9, 25] because of the technology's partial dependency on EHR systems. Government and healthcare organizations consider this technology to be the most feasible, functional, and secure interface between patients and their health records [7]. Healthcare organizations promote this system as a tool for their patients to stay healthy by receiving online services. Internet-based patient portals are intended to improve access and expected to play an important role in patient care, especially patients with diabetes and other chronic illnesses [13]. Healthcare providers are increasingly relying on this technology for asynchronous communication with their patients, which emerging as a feasible substitute for in-person interactions at the time of physician visits.

2.1 Patient Benefits of Using Patient Portal

Several studies reported that patient portals play important roles in patients paying more attention to their own health and engaging them to manage their own care [26, 27]. Patient portal use not only increases patient satisfaction but also alleviates many patient frustrations [28]. Patient portals allow patients to update their contact information, renew their medication prescriptions, request appointments and referrals, securely communicate with their caregivers, provide access to the health information library [1, 24, 29]. In addition, these systems benefit patients by facilitating patient-provider communication [7], allowing them to pay bills, request prescriptions refill, and online access to lab results [26, 30], which help to increase patient satisfaction and improve the quality of care. Patients with chronic illnesses can also use these systems as a self-management tool for managing their day to day health care activities [14].

2.2 Organizational Benefits of Using Patient Portal

Patients' access to portals also provide benefits for healthcare organizations. Patient portals allow healthcare organizations to initiate various disease management programs [7] which are important for providing patient-centered care. In today's dynamic market, patient portals provide competitive advantages to healthcare providers with improved healthcare outcomes by sharing pertinent data and records to patients, by continuous tracking of patient health indicators, and by facilitating an environment for patients and caregivers to work together through coordination of care [31]. The use of patient portals also results to greater administrative efficiencies (e.g. accept online bills and reduced call volume) and improved responsiveness to patients' needs [26] because patients can access and manage their own health data, and engage in their own care and wellness.

2.3 Disparity in Patient Portal use

Despite the increased importance of patient portals in healthcare deliveries, diffusion of this technology among patients remain slow. A limited number of studies to date have investigated this issue to understand the underlying causes. Some studies reported disparity in the use of the patient portal technology. Goel et al. [9] cited lack of computer access, computer literacy, differences in patient attitudes, and patient preferences as possible factors for low overall enrollment of this technology. Several studies [11, 12, 14] reported race and ethnicity as leading factors for the disparities in the use of patient portals. Sarkar et al. [14] found patients' level of education also influence their patient portal usage behavior. Roblin [12] investigated disparities in the use of patient portals and reported socio-economics, computer access, and computer literacy as leading factors, in addition to race and ethnicity. In another study by Goel [7], age and gender were found to influence patients' use of this technology.

3. Health Status Emotion in Healthcare

Health status emotion, originated in health psychology, is an emotion-based factor that is frequently used for understanding the effects of individuals' health-related emotion on their health behavior. It is an individual's cognitive beliefs that represent one's ongoing state of health and illness [32]. An individual's health emotional state depends on the extent of his or her sickness. Higher level of sickness results to high level of health emotion whereas individual with a low level of sickness (an indication of better health condition) will have very little health emotion with respect to their health condition. Thus, health status emotion provides a good indication of an individual's urgency and need for health attention and is said to play an important role in dealing with health-related decisions [23]. Although health psychology researchers have been studying the influence of this factor on people health-related decision-making behavior (i.e. medication use, preventative care, etc.) for several decades, this concept is still relatively new in the technology adoption context and studies focusing on understanding the influence of this factor on technology use behavior are also relatively rare.

In summary, although studies, such as Chang et al. [19], reported patients' individual characteristics can interact with technology to contribute to vulnerability, which potentially influence their technology usage behavior, no study to date investigated the influence of individual characteristics such as personality traits on individuals' patient portal usage behavior. In addition, although the importance of health emotion in technology adoption behavior emerged in recent years [22, 23], the impact of this factor on patient portal use is still unexplored and remained unknown. Thus, I present a research model and empirically test the hypotheses presented in this paper in an effort to understand the interplay between these factors to influence individuals' healthcare technology adoption behavior.

4. Research Model and Hypotheses

In today's dynamic world, with continuous technological changes, understanding factors influencing individuals' perceptions toward technology use remains an important ongoing research topic. Over the years, researchers from multiple disciplines such as Psychology, Sociology, and Information Systems have attempted to investigate human technology adoption behaviors from different perspectives. This paper investigates the use of patient portal technology from human personality psychology and health psychology perspectives. A conceptual model, shown in Figure 1, is developed, incorporating 'personality traits' and 'health emotion status', which influence patients' perceptions toward patient portal use. The remainder of this section is used to discuss these constructs, including their importance in healthcare technology adoption decisions. Using this discussion and evidence from existing literature, a number of hypotheses for this research study are also derived in this section.

4.1 Individuals' Personality Traits

Since the introduction of five-factor model (FFM) [33] and its importance in shaping individual behavior, personality traits continue to emerge as interesting research focus across all disciplines. Although a number of studies [15-18] investigated the influence of personality traits in individuals' technology adoption behavior, they are exclusively in the context of non-healthcare technology. In this section, I review these works that are in the non-healthcare context in order to derive the hypotheses for this study in the healthcare context.

The FFM includes five personality traits namely *Neuroticism*, *Agreeableness*, *Conscientiousness*, *Extraversion*, and *Intellect (Openness to Experience)*. This section discusses how these personality traits may influence individuals' healthcare technology use perceptions in the context of patient portal systems.

4.1.1. Neuroticism. Neuroticism, also known as emotional stability [34], is associated with an individual's negative emotional state. A highly neurotic individual tends to be anxious, nervous, and tense [17].

On the other hand, individuals with low in neurotic personality tend to be more stable, confident, and well-adjusted [15]. Judge et al. [35] reported that highly neurotic individuals are limited in social skills and tend to avoid situations that demand taking control. Several other studies linked neuroticism with high computer anxiety [16, 17]. Thus, individuals with high in neurotic personality view technology as threats and have the tendency to stay away from using new technologies. Amiel & Sargent [36] reported a significant relationship between individuals' low level of neuroticism and greater use of text-messaging tools. I believe that the relationship between individuals' neuroticism personality and their technology use behavior should also hold true in terms of healthcare technology. In other words, patients with high neurotic personality trait are most likely to stay away from using healthcare technologies for their healthcare needs. Thus, the following hypothesis is proposed in the context of patient portal use.

Hypothesis 1: Patients' neuroticism personality traits negatively influence their intention to use the patient portal technology.

4.1.2. Agreeableness. Agreeableness, also known as likability or friendliness [34], is associated with an individual's ability to be accommodating and trustable to others. Agreeableness is generally concerned with one's interpersonal relationship with others. Individuals with low on agreeableness characteristics are said to be anti-social and tend to use technology as an alternate means of communication. Several studies reported greater internet use in people who are not very agreeable [37, 38]. Butt and Phillips [39] also found an association between individuals' low agreeableness trait with their high cell phone usage behavior. I believe that this relationship between individuals' agreeableness personality and their technology use behavior should also hold true in terms of healthcare technology. In other words, patients with high in agreeableness personality traits are most likely to stay away from using healthcare technologies for their healthcare needs. Therefore, following hypothesis is posited in the context of patient portal use.

Hypothesis 2: Patients' agreeableness personality traits negatively influences their intention to use the patient portal technology.

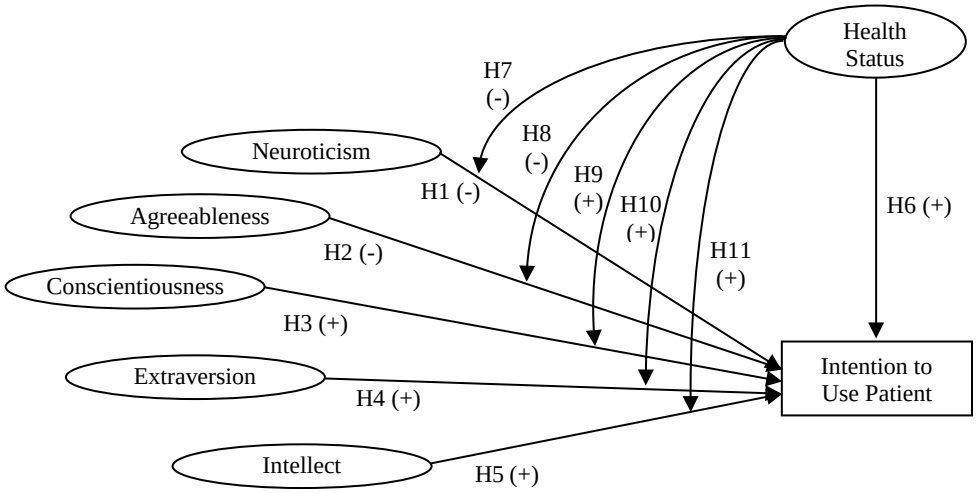

Figure 1. Research Model

4.1.3. Conscientiousness. Conscientiousness, also known as conformity or dependability [34], is associated with an individual's degree of self-control. A person with this personality trait is more likely to be hardworking, persevering, responsible, organized, careful, and thorough. An individual with high conscientious trait is found to have high self-efficacy [20, 40] and tend to enjoy technology [41]. I believe that this relationship between individuals' conscientious personality and their technology use behavior also hold true in terms of healthcare technology. In other words, patients with high conscientious personality traits are most likely to utilize healthcare technologies for their healthcare needs. Thus, the following hypothesis is proposed in the context of patient portal use.

Hypothesis 3: Patients' conscientiousness personality traits positively influence their intention to use the patient portal technology.

4.1.4. Extraversion. Extraversion, also known as surgency [34], is associated with an individual's approach in dealing with environment [17]. Several studies reported extroverted individuals with strong self-efficacy [20, 40] and have a positive attitude toward

Information Technology use [41]. Bianchi and Phillips [42] reported extraverted individuals with high mobile phone use. I believe that this relationship between extroverted individuals and their technology use behavior should also hold true in terms of healthcare technology. In other words, extroverted patients are most likely to take advantage of healthcare technologies for their healthcare needs. Thus, I hypothesize the following in the context of patient portal use.

Hypothesis 4: Patients' extraversion personality traits positively influence their intention to use the patient portal technology.

4.1.5. Intellect. Intellect, also known as openness to experience [34], is associated with individuals characteristic to accept something new without any reservation. Korzaan and Boswell [17] reported that individuals with high intellect tend to be more accepting, less judgmental, have a higher level of tolerance, and easily embrace to new things. Hence, highly intellect individuals are more likely to have positive attitudes toward adopting new technology [15]. I believe that this relationship between individuals' intellect personality and their technology use behavior should also hold true in terms of healthcare technology. In other words, highly intellect patients are most likely to accept and utilize healthcare technologies for taking care of their healthcare needs. Therefore, the following hypothesis is posited in the context of patient portal use.

Hypothesis 5: Patients' intellect personality traits positively influence their intention to use the patient portal technology.

4.2 Individuals' Health Status Emotion

Although health status emotion has mostly used in health psychology research, some works have emerged in recent years specifying its importance in understanding healthcare technology adoption behavior. Xiao et al. [22] very recently conducted an empirical study and reported that individuals with poor health status have high health emotion and are frequent visitors to online chat rooms for seeking health-related information than those with good health and low health emotion. Xiao et al.'s study supports findings of another previous study in the contexts of Internet health information use [43], where higher health emotion leads to higher level of healthcare technology usage. Using a survey study, Houston and Allison reported that individuals with poor health condition were more likely to use Internet and online chats than individuals with a relatively good health condition, even though poor health condition individuals were relatively newcomers to both Internet and online chat technologies. Findings from another recent study [21] also suggest that patients' health emotional state has a significant influence on their technology adoption and use decision in the context of EHR technology. Because individuals with poor health tend to have high health emotional states, and high health emotion individuals are said to be more health conscious and emphasize on their health improvement [23], health emotion status is expected to have a positive influence on people healthcare technology adoption and use decisions. Thus, the following hypothesis in the context of patient portal use is proposed.

Hypothesis 6: Patients' health status emotion positively influences their intention to use the patient portal technology.

As discussed earlier, health status emotion provides a good indication of an individual's urgency and need for health attention and is said to play an important role in dealing with health-related decisions [23]. Individuals' tend to focus on improving their health at any costs at the time of sickness. Thus, it is expected that an individual's health emotion which is tied to his or her on-going health condition will interfere with their personality trait to influence their intention to use healthcare technologies. Thus, the following hypotheses are proposed in the context of patient portal use.

Hypothesis 7: Health status emotion negatively moderates the relationship between neuroticism and intention to use the patient portal technology.

Hypothesis 8: Health status emotion negatively moderates the relationship between agreeableness and intention to use the patient portal technology.

Hypothesis 9: Health status emotion positively moderates the relationship between conscientiousness and intention to use the patient portal technology.

Hypothesis 10: Health status emotion positively moderates the relationship between extraversion and intention to use the patient portal technology.

Hypothesis 11: Health status emotion positively moderates the relationship between intellect and intention to use the patient portal technology.

5. Methodology

The research model proposed in this study is empirically tested using a survey methodology. Survey research method is generally considered to be appropriate in discovering "the relative incidence, distribution, and interrelations of sociological and psychological variables" [44]. The survey technique is also known to be appropriate in situations where perceptual measures rather than objective measures more effectively represent real-world situations [45].

For this study, an instrument with self-report questionnaires is developed to measure the stated factors.

5.1 Scale Development

The survey instrument was developed using already established measurement items from existing literature as well as by creating several new items. While items for personality traits were adapted from existing literature, three items for the health status emotion and two items for intention to use patient portal system were newly introduced due to the unavailability of an appropriate and validated instrument in the healthcare technology adoption context. Table 1 summarizes the measurement items utilized for this study. A five-point Likert scale was used for all measurement items, ranging from 1 (strongly disagree) to 5 (strongly agree).

Table 1. Summary of Measurement Items

Construct	Source	No. of Items
Health Status Emotion	[21, 23], 3 New	5
Neuroticism	[17, 46, 47]	4
Agreeableness	[17, 46, 48]	4
Conscientiousness	[17, 46, 47]	4
Extraversion	[17, 46]	4
Intellect	[17, 46, 47, 49]	4
Intention to Use Patient Portal	[50, 51], 2 New	4

5.2 Data Collection

Surveys for this study were administered to undergraduate students at a university in the mid-central region of the United States. A total of 272 participants took the survey out of which 251 usable responses were kept for data analysis.

6. Data Analysis and Results

In order to analyze the data for this study, a second-generation causal path modeling technique - partial least square structural equation modeling (PLS-SEM) [52, 53] is used. Structural Equation Modeling (SEM) allows researchers to examine the structural component (path model) and measurement component (factor model) simultaneously [54]. In addition, PLS is widely used by researchers because of its less rigid assumptions compared to other methods. Because PLS accepts latent constructs under conditions of non-normality in small to medium sample size [55], it is deemed as suitable for analyzing data for this study.

6.1 Measurement Model Analysis

The psychometric properties (internal consistency reliability, convergent validity, and discriminant validity) of the measurement items were analyzed prior to the path analysis. Table 2 summarizes the results for the measurement model. After initial analysis, several items were excluded from the final analysis due to their low factor loadings. All remaining items have factor loadings that are around or greater than the recommended threshold of 0.6, indicating good loadings for all items. The Cronbach's Alpha and composite reliability values for all items are also within the recommended threshold of 0.7 indicating good internal consistency reliability of the instrument. The Average Variance Extracted (AVE) values for each of the latent variables are also around or above the recommended threshold of 0.5, suggesting good convergent validity for the instrument. The variance inflation factors (VIF) values for all the items are lower than 5, implying that multicollinearity is not a concern for this instrument. Finally, Table 3 shows the square root of AVE for each construct which is greater than the shared variance between the construct and other constructs, which indicate that the instrument has achieved discriminant validity.

Table 2. Measurement Model Results Summary

Item	Loading (L)	Cronbach's Alpha	Composite Reliability	AVE	VIF
HE2	.606	0.525	0.698	0.455	1.250
HE3	.438				1.223
HE4	.898				1.059
NE1	.965	0.636	0.818	0.698	1.278
NE2	.682				1.278
AG1	.966	0.735	0.792	0.571	1.413
AG3	.603				1.556
AG4	.646				1.428
CO2	.753	0.746	0.854	0.662	1.386
CO3	.824				1.569
CO4	.860				1.560
EX2	.637	0.694	0.793	0.564	1.953
EX3	.833				1.917
EX4	.769				1.122
IN1	.825	0.698	0.813	0.597	1.471
IN2	.608				1.369
IN3	.860				1.297
IU1	.747	0.708	0.836	0.631	1.318
IU2	.826				1.395
IU3	.807				1.480

Table 3. Discriminant Validity Analysis

	AGR	CON	EXT	HSE	INT	IU	NEU
AGR	**0.756**						
CON	0.382	**0.813**					
EXT	0.091	0.005	**0.75**1				
HSE	0.147	0.149	0.112	**0.675**			
INT	0.318	0.333	0.169	0.110	**0.772**		
IU	0.030	0.160	0.137	0.223	0.121	**0.794**	
NEU	-0.008	-0.049	-0.374	-0.061	-0.215	-0.160	**0.836**

6.2 Structural Model Analysis

Figure 2 shows the SEM-PLS output for the path model estimation. We assessed the predictive validity by examining the explanatory power and significance of the hypothesized paths because, unlike Covariance-based (CO-SEM), SEM-PLS analysis does not generate overall goodness of fit indices. The summarized results for the path analysis is shown in Table 4. Out of five personality trait factors, only conscientiousness shows to have a significant influence on intention to use patient portal with $\beta = 0.193$, $p < 0.05$, supporting hypothesis 3.

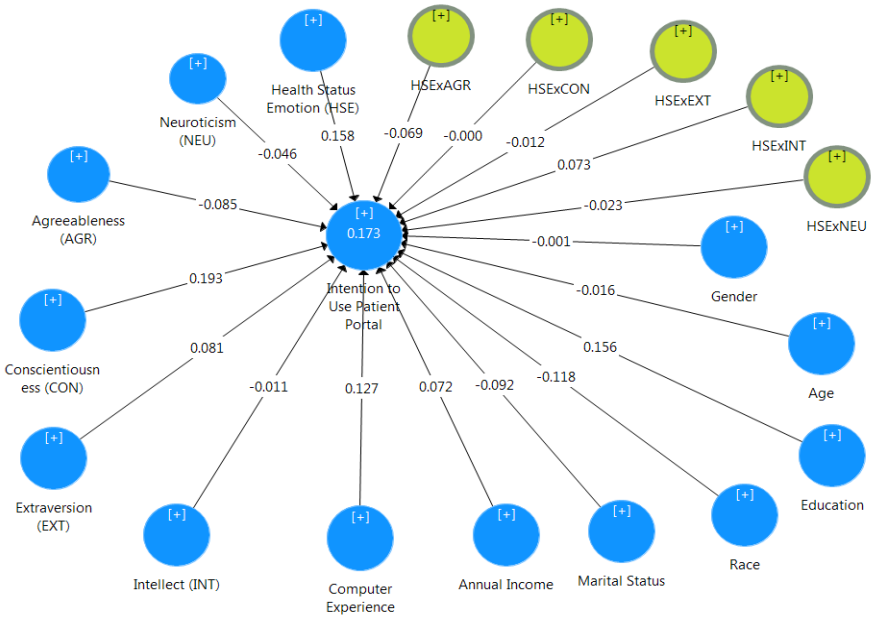

Figure 2. PLS-SEM Structural Model for Path Analysis Estimate

Out of all the latent variables, individuals' health status emotion shows the strongest significant influence on their intention to use patient portal with $\beta = 0.158$, $p < 0.01$. Thus, hypothesis 6 is supported. Out of all the control variables, education, race, and computer experience show significant influence on intention to use patient portal with ($\beta = 0.156$, $p < 0.01$), ($\beta = -0.118$, $p < 0.1$), and ($\beta = 0.127$, $p < 0.1$), respectively. Thus, hypothesis 6 is supported.

Table 4. Structural Model Path Analysis Results

Path	β	p	T Stat
Health Emotion → Intention to Use	0.158	.009***	2.600
Neuroticism → Intention to Use	-0.046	0.530	0.628
Agreeableness → Intention to Use	-0.085	0.414	0.817
Conscientiousness → Intention to Use	0.193	0.018**	2.380
Extraversion → Intention to Use	0.081	0.426	0.796
Intellect → Intention to Use	-0.011	0.903	0.122
Age → Intention to Use	-0.016	0.824	0.222
Gender → Intention to Use	-0.001	0.984	0.020
Race → Intention to Use	-0.118	0.070*	1.812
Marital Status → Intention to Use	-0.092	0.187	1.320
Annual Income → Intention to Use	0.072	0.218	1.233
Computer Exp. → Intention to Use	0.127	0.072*	1.800
Education → Intention to Use	0.156	.010***	2.586
HSE x AGR → Intention to Use	-0.069	0.379	0.881
HSE x CON → Intention to Use	0.000	0.996	0.005
HSE x EXT → Intention to Use	-0.012	0.884	0.146
HSE x INT → Intention to Use	0.073	0.402	0.839
HSE x NEU → Intention to Use	-0.023	0.763	0.302
*p < 0.1, **p < 0.05, ***p < 0.01			

6.3 Discussion of Results

The results discussed above helps to answer the two research questions presented at the beginning of this paper. Based on the findings, it is clear that some of the personality traits, such as conscientiousness, have a significant role influencing patients' healthcare technology adoption decision. In other words, conscious individuals are more likely to use healthcare technologies for their healthcare needs. The health status emotion seems to have the strongest influence on intention to use patient portal. This implies that individuals with health issues have their health emotion supersedes all other factors in making healthcare technology adoption decisions.

Although it was expected that intellect (openness to experience) to have significant positive influence on healthcare technology adoption, the results did not support this hypothesis. One explanation for this is that

when it comes to individuals' healthcare needs, personality traits, such as openness to experience new technology, become irrelevant. Other motivational factors, such as gaining social status, group acceptance, or achieving hedonic experience become insignificant, and individuals' health emotion or desire to recover from the illness take precedence over other factors.

Among all the control variables, education, race, and computer experience have a significant influence on intention to use patient portal. Education seems to have the strongest influence, which suggest that educated individuals are more likely to take advantage of the technology to better manage their health.

7. Implications and Limitations

Understanding individual characteristics of patient portal users is important not only for practitioners but it is also an area of interest for Information Systems and Health Informatics researchers. This study can shed lights to practitioners who implement and deploy patient portal systems to be used by patients. It also provides healthcare organizations with an integrated view of patient portal use behavior considering individual characteristics and health conditions. The results reported here can be used to make strategic decisions for promoting this technology to the appropriate groups of patients, instead of current ad-hoc approach. Healthcare organizations can use these findings to promote the technology to a more appropriate population, which can help increase the number of patient enrolment. In addition, this study seeks to augment the technology acceptance literature by understanding the interplay between patients' personality characteristics and their health emotional factor. By investigating individuals' dispositional factors in the technology adoption context, we responded to the call by Saleem et al. [20] for research examining the role of personality traits in IT literature. Moreover, this study explores the influence of health status emotion as a moderating factor, which is first ever study to investigate this factor in the patient portal technological context, although no significant moderation effect was found.

Several limitations must be acknowledged before considering the value of this study. First, this study used students as a convenience sample. Although, students are the appropriate population for this study context, there is still potential to increase the generalizability of this study by utilizing a broader population. A second limitation of this study is within the measurement instrument for measuring health status emotion. Due to the lack of availability of a validated instrument for this construct, a set of new items were introduced which resulted Cronbach's alpha for this construct to be slightly lower than the recommended threshold of 0.7. A third limitation is also related to the measurement instrument of some of the personality trait constructs. The Cronbach's alphas for some of the personality trait constructs are also slightly below the recommended threshold of 0.7. One reason for this is the use of short form measure for these constructs. Due the nature of healthcare industry, it is important to keep the length of survey fairly short for adequate patients' participation. Future studies can be crafted with better measurement items to have a higher reliability of the instrument.

8. Conclusion

While existing research on patient portal adoption is focused on understanding patients' demographic characteristics, this study focuses on patients' health status emotion and the dispositional factors – their personality traits. This study sheds light on the interplay between these factors for healthcare technology adoption decision in the context of patient portal. Because patients are the ultimate beneficiaries of any healthcare technologies, such as patient portal, understanding their characteristics that influence the use of these technologies is not only important but also essential for the successful technology diffusion. I hope this study will serve as a step forward toward the efforts to understand patients' perceptions toward healthcare technologies adoption.

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